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Planning for tomorrow.

CEC's Workshop on California-Mexico Border Energy Issues
December 14, 2004

San Diego Current Energy Challenges

- Local energy demand hit record levels this past summer (4065 MW PEAK)
- San Diego's existing power plants are getting older and less economical to operate
- Existing transmission lines are congested, driving up the cost of power
- State mandate requires 20 percent of region's energy supply to come from renewable sources by 2017

The San Diego Union-Tribune.
October 24, 2004

Report sees approaching electricity shortage in state

"Clogged transmission lines and aging power plants could create electricity shortages in Southern California as early as summer 2006..."

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Planning for Our Region's Energy Future

SDG&E's Long Term Resource Plan

Balanced strategy to ensure a safe, reliable supply of energy

- Relies on four strategic energy elements

  1. Continued emphasis on energy efficiency and conservation
  2. Increasing renewable energy supplies to 20 percent by 2010
  3. Building new generation resources in San Diego
  4. Adding new transmission

- Follows the CPUC's "preferred loading order"

- Consistent with State policy and SANDAG's Regional Energy Strategy/Regional Energy Infrastructure Study

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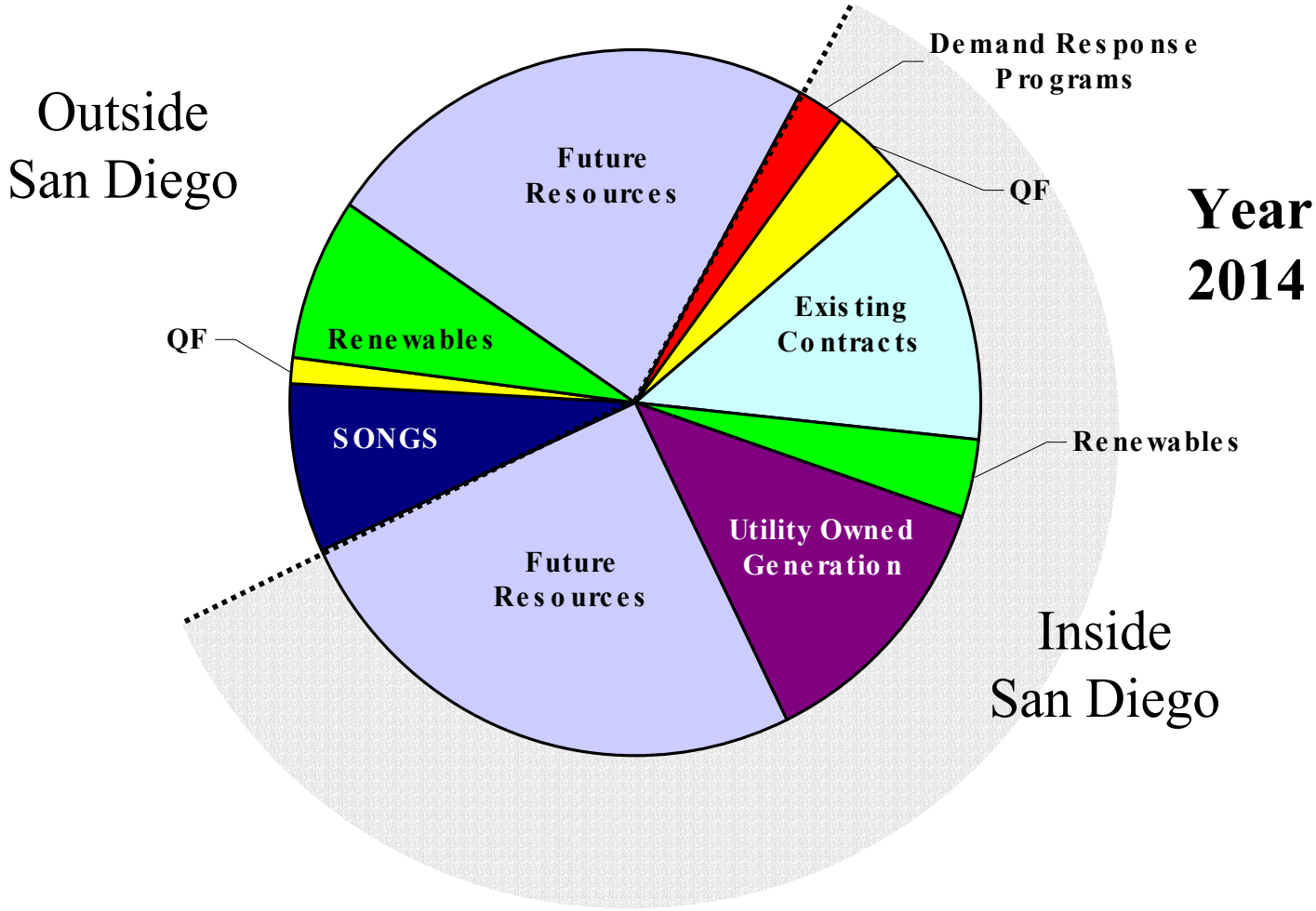
A Diversified Mix of Resources

SDG&E's supply strategy uses a diversified mix of resources to meet future demands



Long Term Energy Resource Plan: Energy Efficiency and Conservation

- Demand side reduction and energy efficiency is the most effective way to reduce the need for new power plants

- Rebates and incentives for energy efficiency improvements
  - Appliance recycling
  - Window replacement
  - Commercial and residential

- SDG&E partners with local cities on energy efficiency programs

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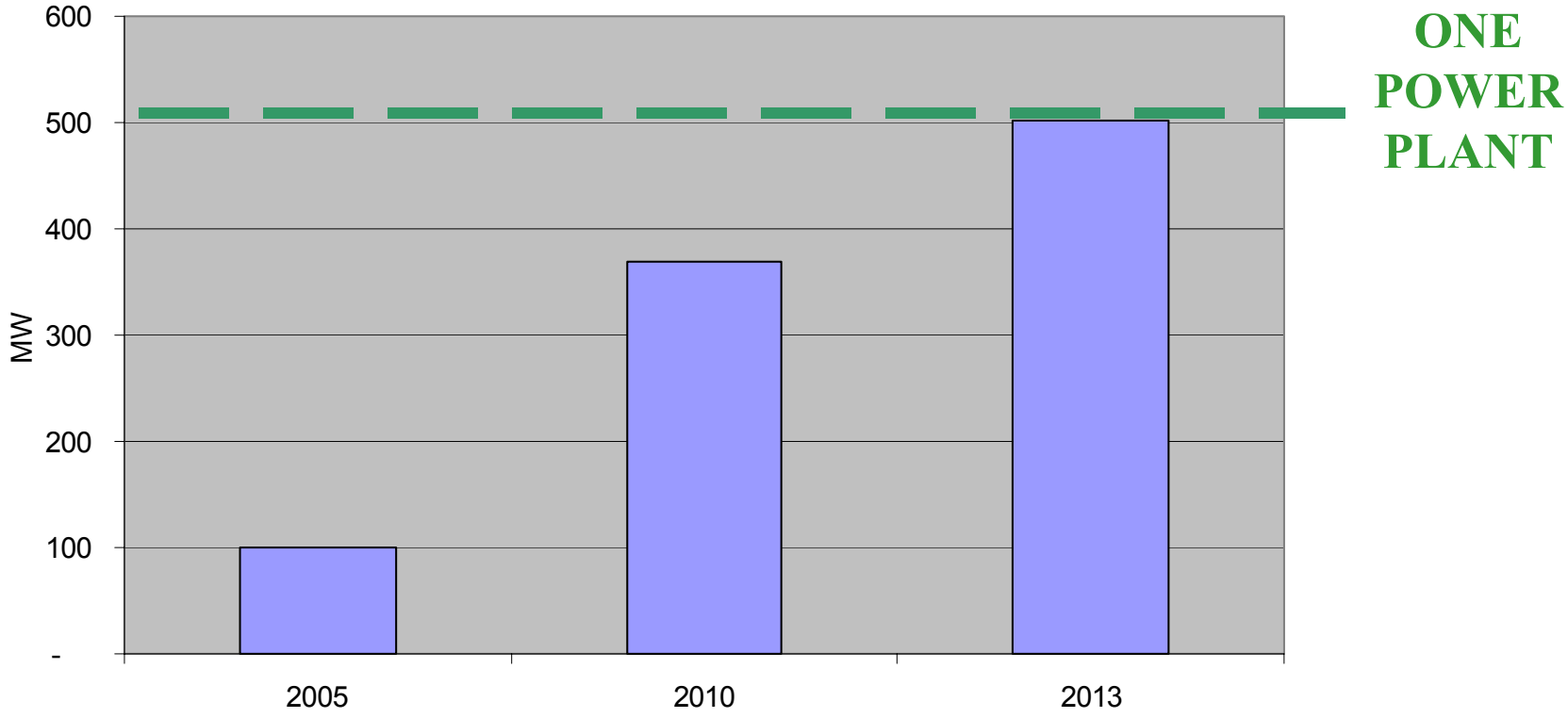
Energy Efficiency and Conservation

Planned Energy Efficiency



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Renewable Energy Supplies

What Steps SDG&E is Taking to Add More Renewables Today

- **Solar PV and Net Metering Growth Continues**
  - 1740 PV systems totaling 8.6 MW (less than .2% of peak load)
- SDG&E is adding renewable energy today with small hydroelectric, biogas, solar and recently approved wind generation, but local supply is limited
- **SDG&E recently issued a Request for Offers to add more renewables**
- Access to cost effective wind and geothermal in mountain and desert areas could help region achieve 20 percent goal, but this area lacks transmission

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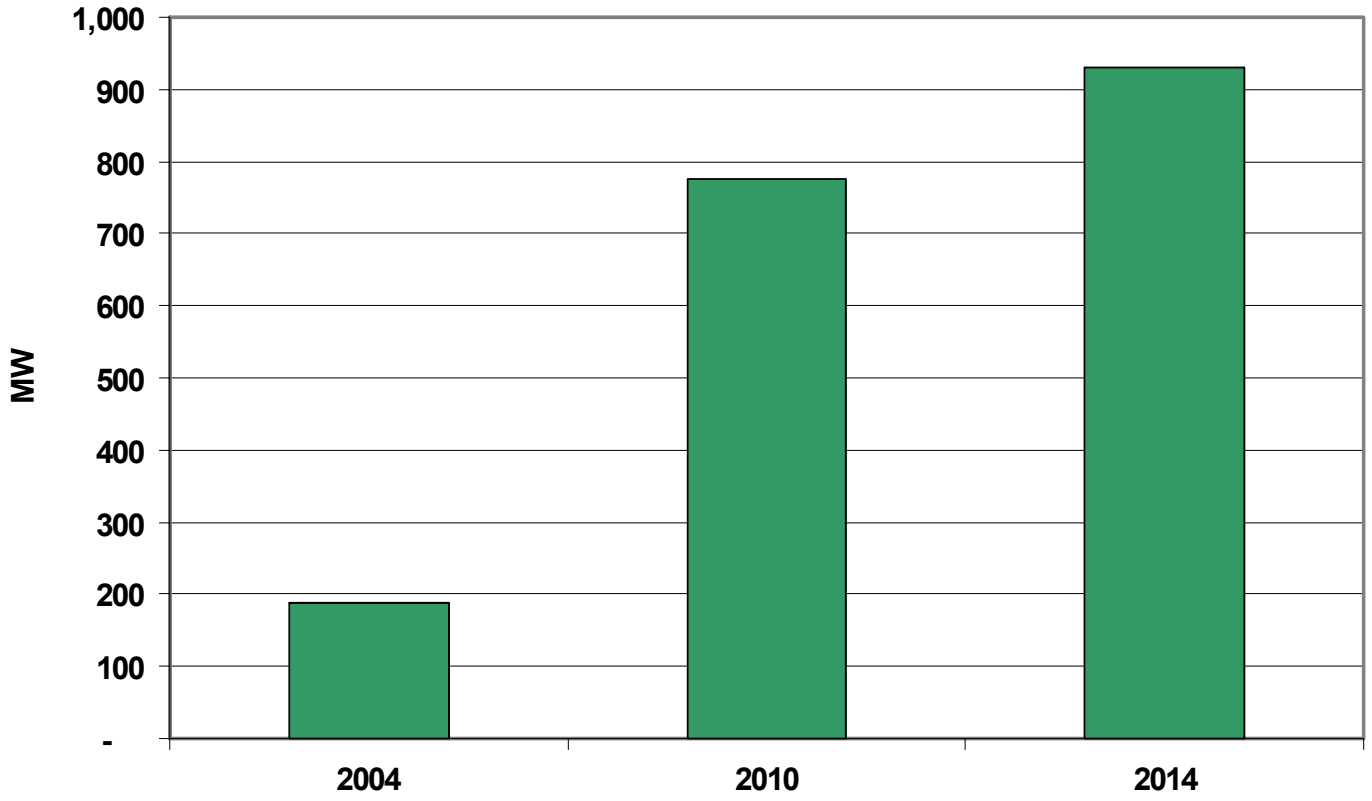
Renewable Energy Supplies

Planned Renewable Additions



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Power Plants & Projects to Support Reliability

- New conservation measures, new renewable power plant and three new natural gas power plants approved by CPUC on June 9, 2004:
  - **2005 Miramar Plant (SDG&E)– 45 MW**
  - **2006 Palomar Energy (SDG&E) – 550MW**
  - **2008 Otay Mesa (Calpine) – 560 MW**
- Adding these new resources will meet local reliability needs through 2010 and support our balanced approach to meet San Diego's energy needs over next decade.

The San Diego Union-Tribune.

June 10, 2004

SDG&E gets PUC go-ahead on plants

"The state Public Utilities Commission yesterday approved an SDG&E plan that could lead to San Diego County's first new power plants in decades..."

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New Local Generation

- **Palomar Energy and Otay Plants are the first new major power plants to be constructed in San Diego County in nearly 50 years.**

Palomar Energy Pad
Escondido

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Transmission

- The Valley-Rainbow Interconnect 500kV project was turned down by the CPUC in 2003.
- SDG&E's transmission import capacity is now fully utilized on peak day – a new 500kV is needed for reliability as early as 2010.
- New transmission could help meet the region's renewables mandate 7 years earlier by providing access to "green energy" from geothermal power plants.
- SDG&E is making improvements to relive congestion and is upgrading the 230kV system.

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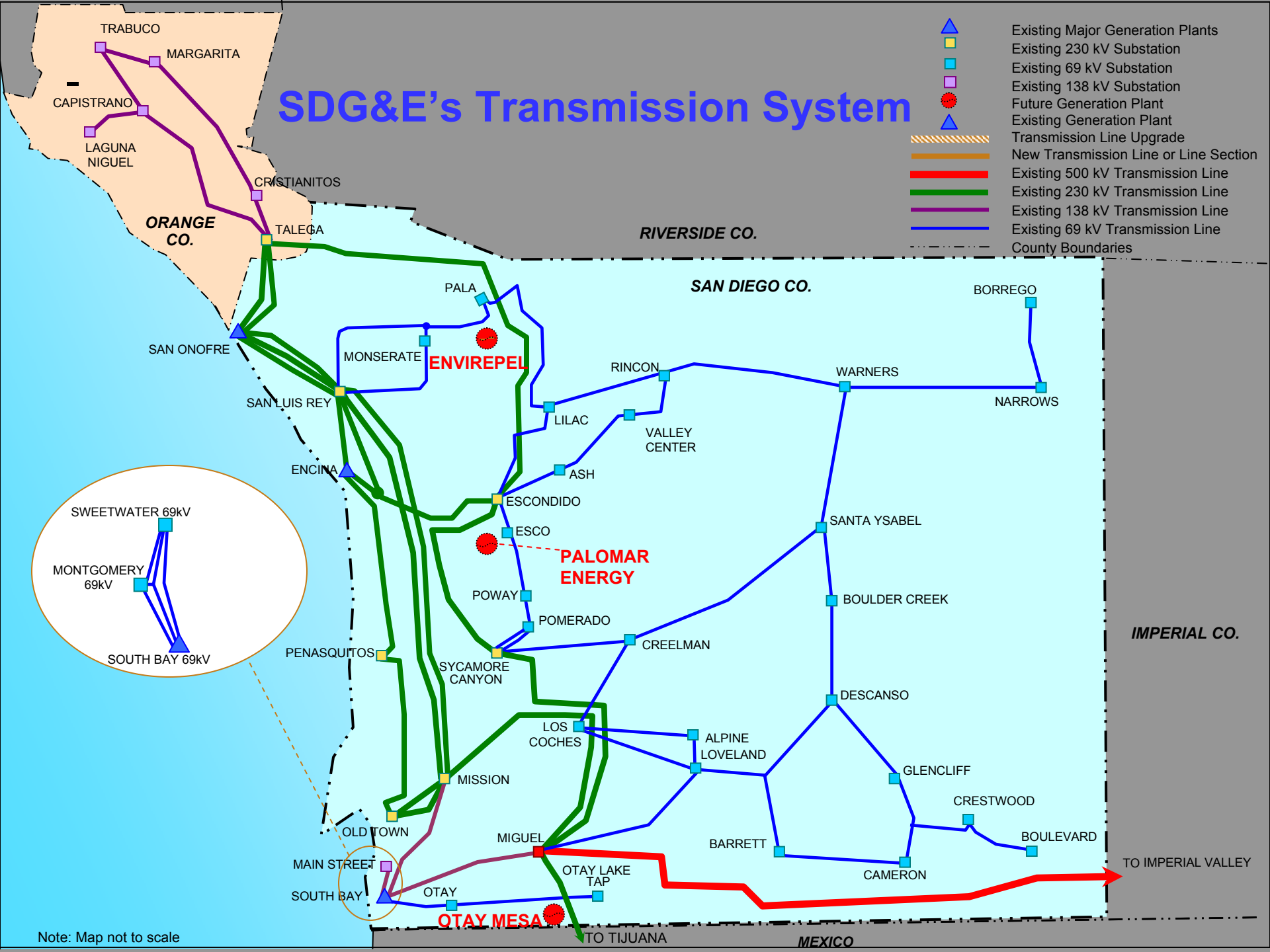
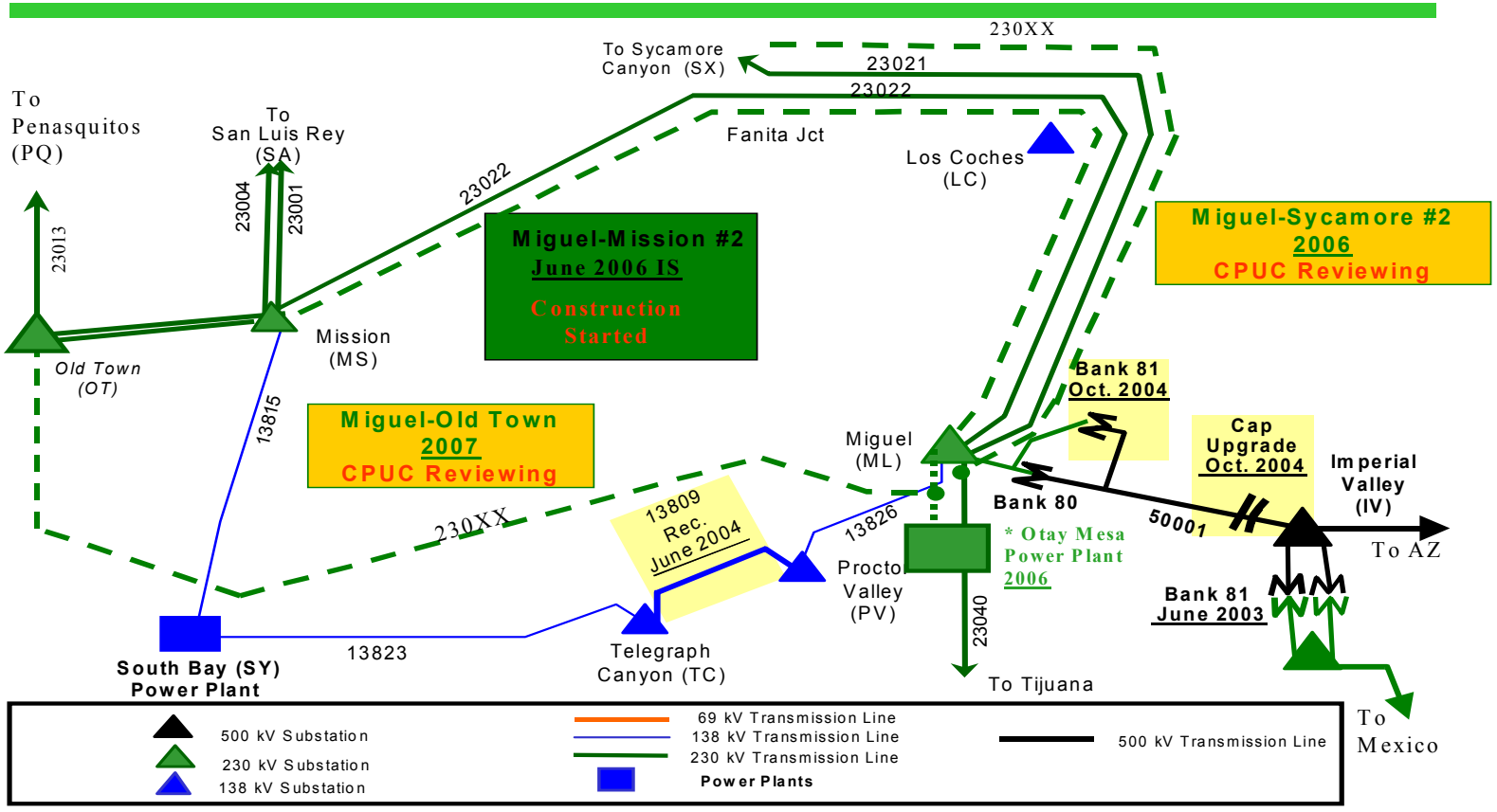

SDG&E's Transmission System
Existing Major Generation Plants
Existing 230 kV Substation
Existing 69 kV Substation
Existing 138 kV Substation
Future Generation Plant
Existing Generation Plant
Transmission Line Upgrade
New Transmission Line or Line Section
Existing 500 kV Transmission Line
Existing 230 kV Transmission Line
Existing 138 kV Transmission Line
Existing 69 kV Transmission Line
County Boundaries
ORANGE CO.
RIVERSIDE CO.
SAN DIEGO CO.
IMPERIAL CO.
MEXICO
TRABUCO
MARGARITA
CAPISTRANO
LAGUNA NIGUEL
CRISTIANITOS
TALEGA
SAN ONOFRE
PALA
MONSERATE
ENVIREPEL
SAN LUIS REY
RINCON
LILAC
VALLEY CENTER
WARNERS
BORREGO
NARROWS
ENCINA
ASH
ESCONDIDO
ESCO
PALOMAR ENERGY
SANTA YSABEL
POWAY
POMERADO
BOULDER CREEK
CREELMAN
PENASQUITOS
SYCAMORE CANYON
DESCANSO
LOS COCHES
ALPINE
LOVELAND
GLENCLIFF
CRESTWOOD
MISSION
OLD TOWN
MIGUEL
BARRETT
BOULEVARD
MAIN STREET
OTAY LAKE TAP
CAMERON
TO IMPERIAL VALLEY
SOUTH BAY
OTAY
OTAY MESA
TO TIJUANA
SWEETWATER 69kV
MONTGOMERY 69kV
SOUTH BAY 69kV
Note: Map not to scale

Transmission System Upgrades

Recent Transmission Projects



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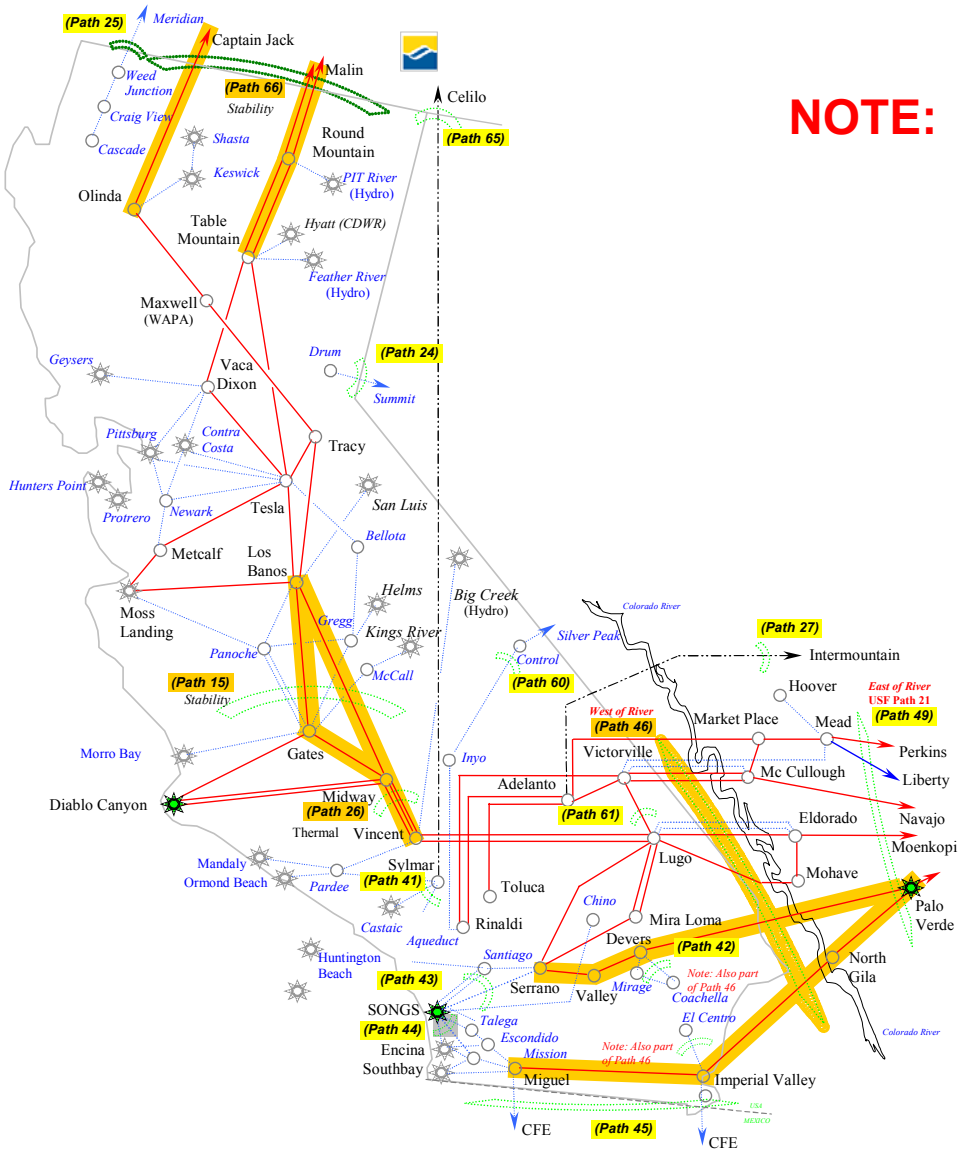
California's Electric Grid

California EHV Transmission System



NOTE: California has 47 500kV transmission lines.

San Diego County has only one.

CONGESTED TRANSMISSION PATHS IN CALIFORNIA

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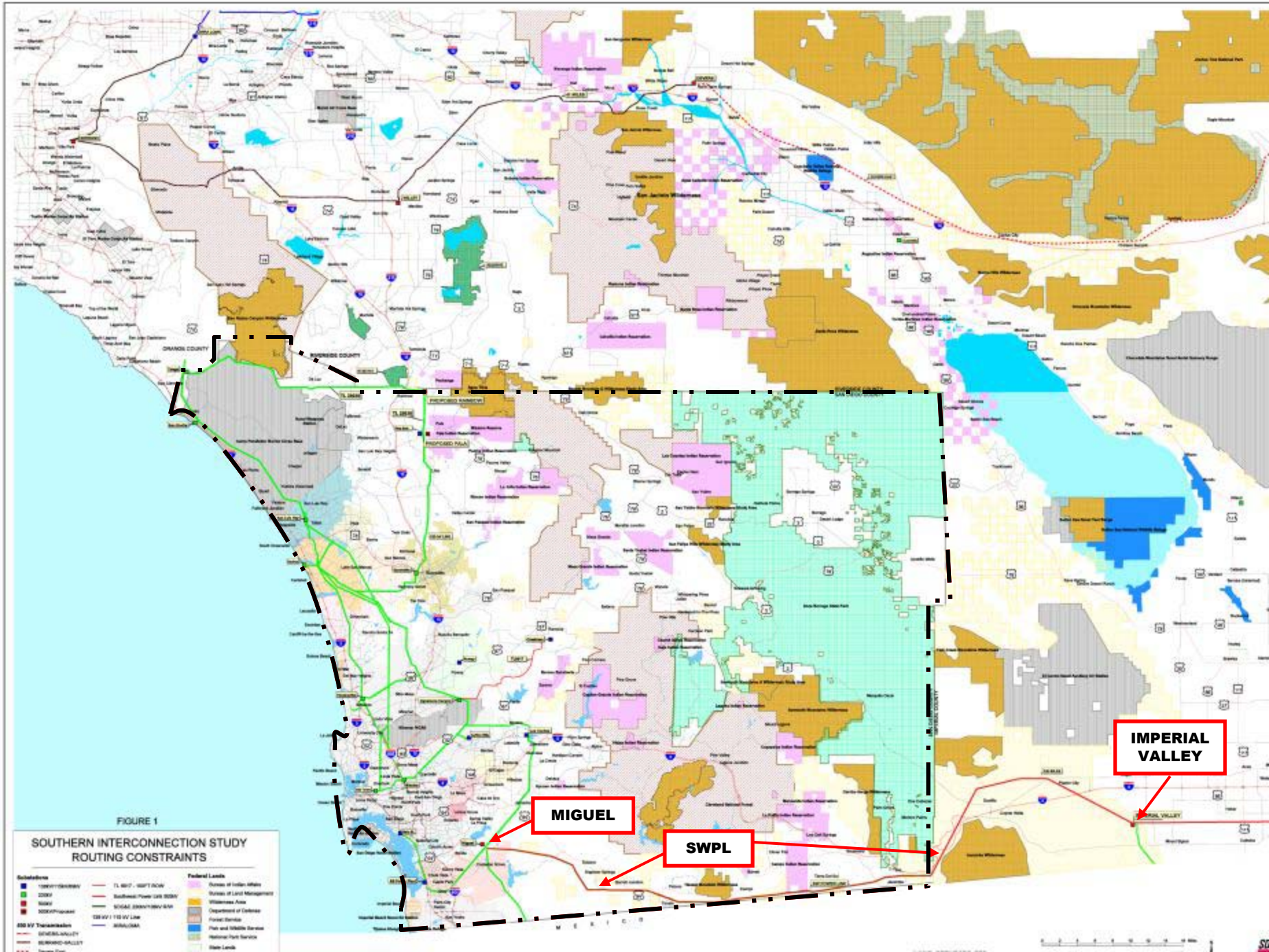
About Our Region's Transmission System

- The existing transmission is vulnerable (e.g. firestorm 2003 and San Onofre outage on Nov. 19).
- San Diego's existing transmission line is congested, much like a freeway during rush hour, which impacts reliability and dives up the cost of power for San Diego consumers.
- There are no utility corridors in California – making siting new transmission the single greatest challenge to building new infrastructure.


IMPERIAL VALLEY
MIGUEL
SWPL
FIGURE 1
SOUTHERN INTERCONNECTION STUDY
ROUTING CONSTRAINTS

Working with Others to Find Solutions

- SDG&E is conducting several comprehensive studies of potential transmission solutions for the region.
- SDG&E is working with the California Independent System Operator and others in an open and public process.
- Over the next 6-months, we will identify transmission solutions that meet the region's demands for power.

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APS

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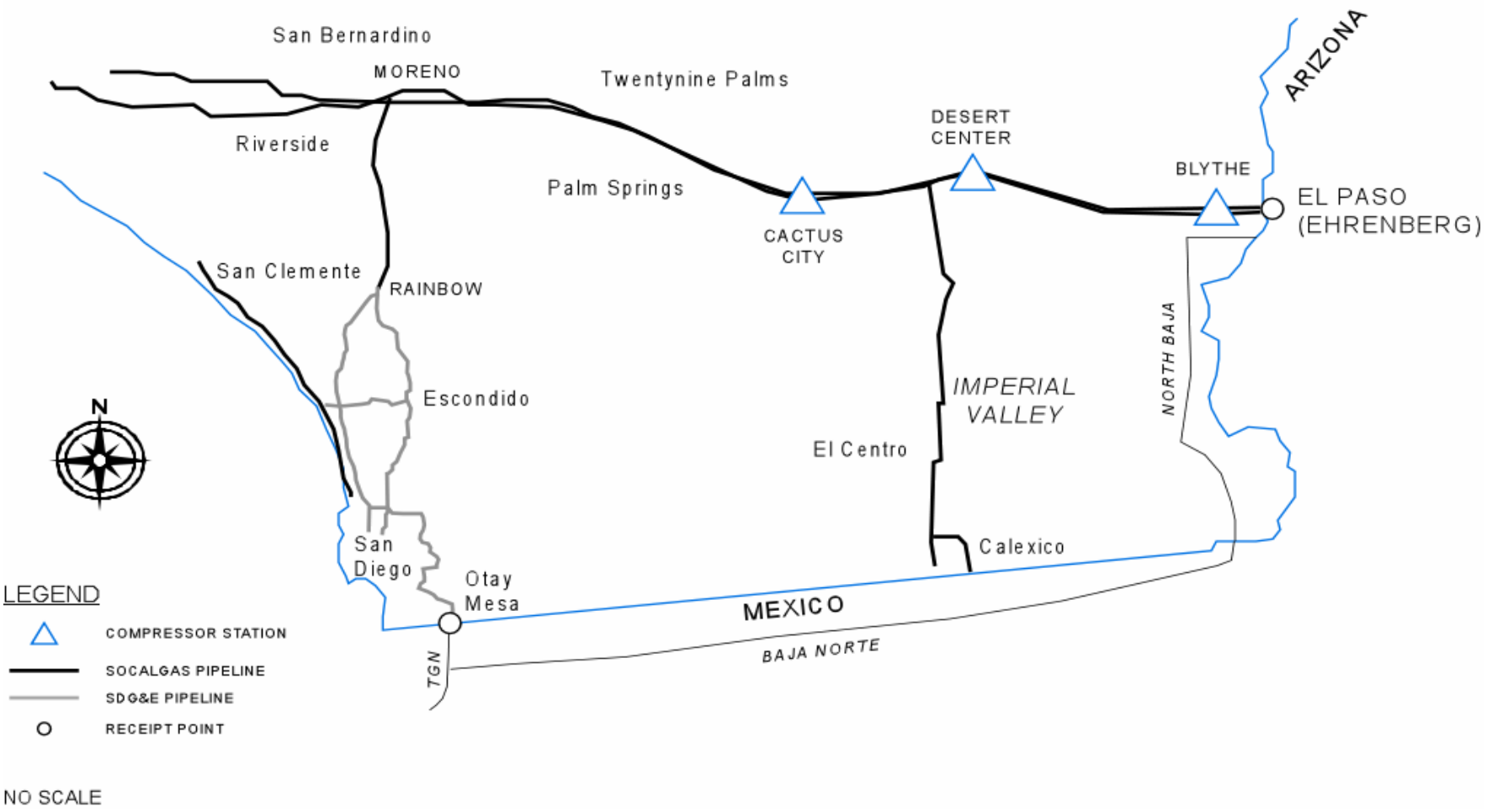
DISTRICT

CALIFORNIA ISO

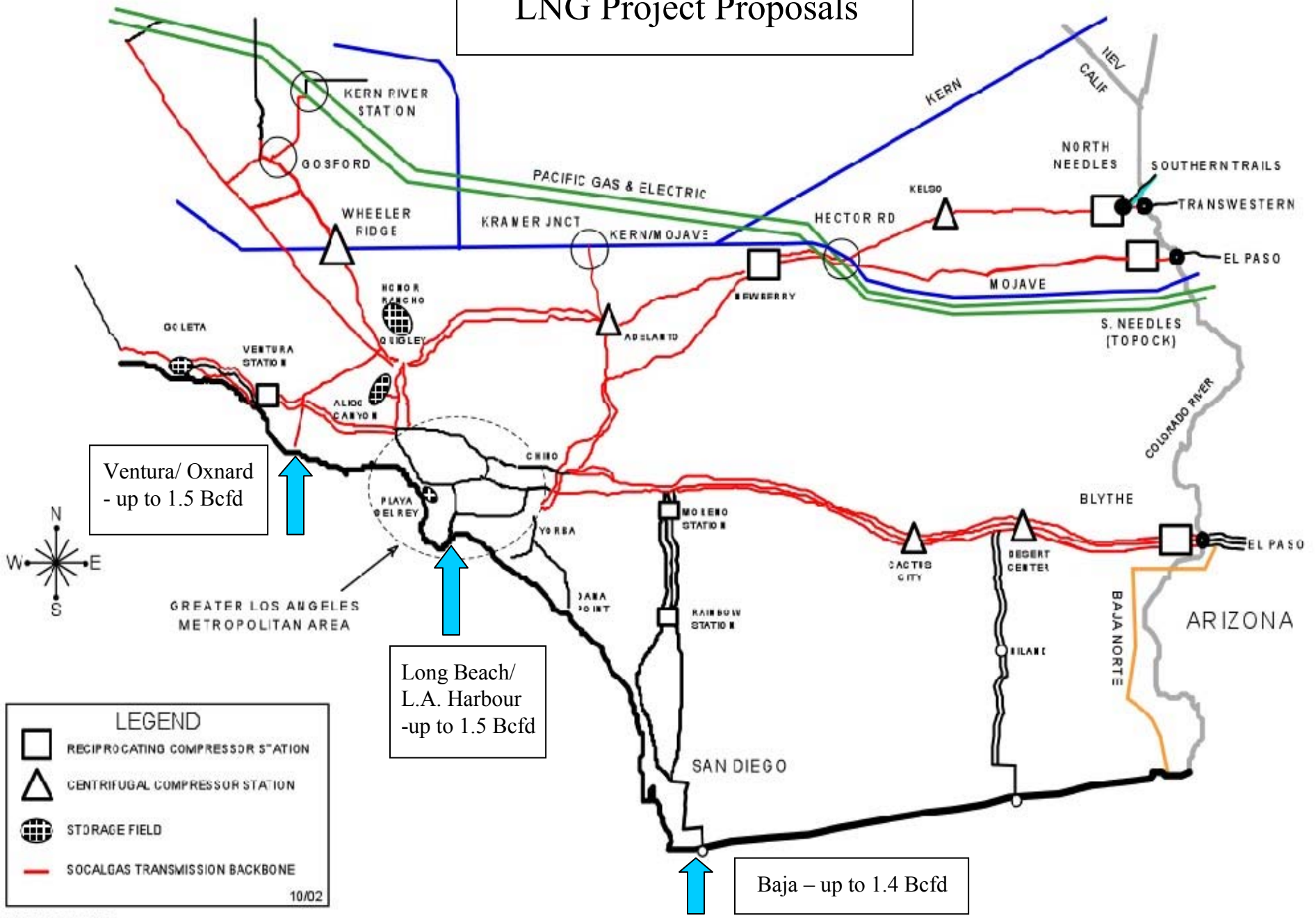
Gas Delivery System

- The SDG&E gas transmission system is operationally integrated with that of its sister utility, SoCalGas.
- The utilities' gas transmission systems interconnect with Mexican facilities at two locations:
  - On the SDG&E system at Otay Mesa.
  - On the SoCalGas system at Calexico/Mexicali.
- Both interconnects were designed to transport supply from the SoCalGas/SDG&E system to Mexican customers.
  - Otay Mesa can be "reversed" and receive supplies from Mexico.
  - Design capacity of up to 400 MMcfd.

Gas Delivery System MAP



LNG Project Proposals



Questions ?

Dave Geier, Vice President
Electric Transmission and Distribution
SDG&E